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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,294	03/29/2001	Yasuo Sasaki	057482/0160	6586

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WASHINGTON, DC 20007

EXAMINER

COLE, ELIZABETH M

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 07/08/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/806,294

Applicant(s)

SASAKI ET AL.

Examiner

Elizabeth M Cole

Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/21/03 has been entered.

2. Claims 7, 17 and 18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as originally filed does not provide support for the limitation that the nonwoven fiber bundles and the thermoplastic resin fibers are arranged together in one direction.

3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites that "the thermoplastic resin component is a thermoplastic resin". This limitation renders the claim vague and indefinite because it is not clear how the limitation that the thermoplastic resin is a thermoplastic resin limits the claim.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 6 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 08-197,626

A (machine translation attached). JP 08-197,626 teaches a sheet which comprises at least two

layers of unidirectional fiber bundles wherein the direction of the bundles of the first layer is at right angles to the direction of the bundles of the second layer. A third layer at an angle to the second may be added. See page 5 of detail description paragraph 0060. The bundles comprise thermoplastic resin powder which is attached to the bundles and which serves to bond the layers of the sheet together. JP 08-197,626 further discloses the claimed method of applying thermoplastic resin powder to the parallel fiber bundles, stacking the bundles and heating and pressing to form a bonded sheet. See page 4 of the Detailed Description, paragraph 0051-0052. Although JP '626 does not call the material a non-woven fabric, since it has the same structure as the claimed invention, i.e., a plurality of unidirectional fiber bundles in layers wherein the direction of the bundles in one layer is at an angle to the direction of the bundles in the other layer.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-6, 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 08-197,626 in view of Sasaki et al, U.S. Patent No. 5,308,424. JP 08-197,626 teaches a sheet which comprises at least two layers of unidirectional fiber bundles wherein the direction of the bundles of the first layer is at right angles to the direction of the bundles of the second layer. A third layer at an angle to the second may be added. See page 5 of detail description paragraph 0060 and the section entitled operation. The bundles comprise thermoplastic resin powder which is attached to the bundles and which serves to bond the layers of the sheet together. JP 08-197,626 further discloses the claimed method of applying thermoplastic resin powder to the parallel fiber bundles, stacking the bundles and heating and pressing to form a bonded sheet. See page 4 of the Detailed

Description, paragraph 0051-0052. JP '626 does not teach arranging the fibers of the reinforcing layers at oblique angles. Sasaki et al teaches applying reinforcing fibers at oblique angles in order to improve the structural strength and dimensional stability. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have arranged the reinforcing fibers of JP '626 at oblique angles as taught by Sasaki in order to improve the structural strength and dimension stability of the material.

8. Claims 7, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '626 in view of Sasaki et al as applied to claims above, and further in view of Tsuchiya et al, U.S. Patent No. 5,773,625. Neither JP '626 nor Sasaki et al teaches further incorporating thermoplastic fibers which are aligned in the direction of the fiber bundles. Tsuchiya et al teaches that additional thermoplastic fibers may be incorporated with unidirectional fiber sheets. Although Tsuchiya et al is primarily drawn to sheets wherein the additional thermoplastic fibers are not oriented in a particular direction, Tsuchiya does teach that such sheets are known, see col. 1, lines 51-58. Such sheets have more strength in the direction of orientation than in the transverse direction. It would have been obvious to have employed unidirectionally oriented thermoplastic fibers with the unidirectional bundles of JP '626. One of ordinary skill in the art would have been motivated to include such fibers by the teaching of Tsuchiya et al that these fibers enhance the strength of the unidirectional sheet. Since JP '626 solves the problem of strength in the direction transverse to the orientation of the fibers by forming multiple layers which are oriented at angles to each other, the problems which Tsuchiya et al discuss related to the unidirectional orientation of the thermoplastic fibers would not negate the significance of the teaching of Tsuchiya et al for JP '626, especially since Tsuchiya et al teaches that the thermoplastic fibers will naturally align themselves during production, which would result in a

simple and easy method of production.

9. Applicant's arguments filed 11/13/02 have been fully considered but they are not persuasive. Applicant argues that JP '626 does not disclose certain feature of claim 1, 3, and 6. Claim 3 recites a tri-axial fabric, and since JP '626 discloses a three layer fabric with the layers at different angles, this anticipates claim 3. JP '626 teaches employing a thermoplastic resin powder. Therefore, JP '626 anticipates claim 6. The 103 rejection refers to the lack of disclosure of placing the layers so that the bundles were at oblique angles in JP '626. Claims 1,3, and 6 are included in the 103 rejection because anticipation is the epitome of obviousness. However, claims 1,3 and 6 are anticipated. Therefore, the rejection has been maintained.

With regard to the 103(a) rejection, Applicant argues that JP '626 fails to disclose a plurality of nonwoven layers. However, this argument is not persuasive because the structure of JP 08-197,626 is the same as the claimed structure. JP '626 teaches that the structure comprise multiple layers comprising unidirectional fiber bundles wherein the direction of the bundles are at angles to each relative to the other layers. JP '626 teaches two or more unidirectional layers which are laminated crosswise. See the section "Operation" of the machine translation. Therefore, '626 discloses the claimed invention and the rejection has been maintained.

With regard to claim 7, Applicant's arguments are moot in view of the new grounds of rejection.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (703) 308-0037. The examiner may be reached between 6:30 AM and 5:00 PM Monday through Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (703) 308-2414.

Inquiries of a general nature may be directed to the Group Receptionist whose telephone number is (703) 308-0661.

The fax number for official faxes is (703) 872-9310. The fax number for official after final faxes is (703) 872-9311. The fax number for unofficial faxes is (703) 305-5436.



Elizabeth M. Cole
Primary Examiner
Art Unit 1771

e.m.c

July 1, 2003